

II. Remarks

Reconsideration and allowance of the present application are respectfully requested.

Claims 1-22 currently stand in the present application. Claim 1 is independent.

Claim 1 has been amended to define as a step in the present process drawing inward the periphery of the stack from a first position to a second position by applying a uniform pressure to the stack with the die press. Support for this amendment can be found in Figures 2, 3 and 4. Claim 1 has been further amended to recite that the die press contacts substantially the entire surface of the stack. Support for this amendment can be found in Figures 2, 3 and 4 of the present application.

Claims 2 through 22 are as originally filed.

Accordingly it is believed that no new subject matter has been entered by the amendments presented herein.

In Paper Number 9, the Examiner rejected Claims 1 through 22 of the present application under 35 U.S.C. §102(b) as purportedly being anticipated by United States patent 5,985,457 ("Clifford"). This rejection is traversed. Reconsideration is requested in light of the following remarks.

The Examiner states that Clifford discloses that it is known to form a non-planar laminate. According to the Examiner, Clifford teaches all of the essential limitations of the claims of the present application. The Applicant respectfully submits that this is clearly wrong.

Clifford teaches a metal and paper composite sheet having improved stiffness – see column 1, lines 8-11. While Clifford teaches that the composite panel taught therein may be used as a stiff and lightweight substitute for thicker metal panels and identifies some typical uses of such prior art metal panels, at no point does Clifford teach the process defined in current Claim 1 of the present application. Further, Clifford does not teach other elements of the process recited in Claim 1. Specifically, Clifford does not teach a process for laminating and forming a composite part that involves the step of drawing inward the periphery of the composite stack (to be formed and laminated) from a first position to a second position by applying a uniform pressure to the stack with a die press. Nor does Clifford teach laminating and forming a composite part in a single operation using a die press which, during the process, contacts substantially the entire surface of the stack.

In light of the foregoing remarks, the Examiner is requested to reconsider and withdraw the rejection under 35 U.S.C. §102(b).

In Paper Number 9, the Examiner also rejected claims 1 through 22 under 35 U.S.C. §103(a) as purportedly being obvious in light of Clifford in view of United States patent 3,340,714 [Pohl (Pohl)].

The Examiner appears to rely on Pohl for the teaching of a method wherein a three-layer laminate is subjected to conditions such that lamination/bonding and shaping is effected simultaneously. The Examiner appears to rely on Pohl in the event that Clifford is found to be deficient in teaching the process defined by Claim 1.

Figure 1 of Pohl is a cross-sectional view of a forming die suitable for the practice of the forming technique taught therein. The forming tool 21 includes female member 22, having means 23(a) and 23(b) for alternately heating and cooling member 22, surrounded by a concentric cooling ring 24, having cooling means 25, and blankholder 26, having cooling means 27, member 22 being supported by base plate 28. A heat insulation pad 29 is interposed between base plate 28 and female member 22. Male member 30 is provided and has means 31(a) and 31(b) for alternately heating and cooling and complements the shape of female member 22 – see column 1, lines 55-66 of Pohl

In practice, blankholder 26 moves downward and clamps laminate 32 against cooling ring 24 under the influence of moderate pressure. Male (shaping) member 30 then begins its descent under pressure – see column 2, lines 14-18 of Pohl. Indeed, in contrast to current Claim 1 of the present application, the clamping pressure of laminate 32 between cooling ring 24 and blankholder 26 is illustrated as being sufficient to prevent indraw of the marginal edges of laminate 32.

In further contrast to current Claim 1 of the present application, as illustrated in Figures 1-3 of Pohl, male member 30 does not contact substantially the entire area of the laminate being formed at any point during the process. The periphery of the laminate lies outside both the clamping blankholder 26 and the area of the laminate contacted by male member 30. In the result, this portion of the Pohl product is not useable and, for most applications must be removed or otherwise subjected to further processing necessitate further labour and expense.

The laminate used in the die press of Pohl is clearly a pre-fabricated laminate. In other words, Pohl does not teach or suggest the use of the stack recited in Claim 1 of the present

application. This is clear, since Pohl purport to produce a shaped laminate product without destroying the laminate – see column 1, lines 32-33 of Pohl. Since the clamped portion of the laminate in the Pohl method is maintained at 60°F (see column 2, line 61 of Pohl), the laminate must be pre-fabricated or the resulting product will not be bonded at the clamped portion. Further, the periphery of the laminate extends outwardly from the clamped area and therefore is not subject to any clamping or shaping pressure and clearly would not be bonded by the shaping method taught in Pohl. As a result, applying the method of Pohl to a non-bonded stack would be counterproductive to the object of Pohl, as it would result in a shaped product having a non-bonded periphery.

Were the method taught in Pohl to be applied to an un laminated stack, post-forming processing would be required to obtain a shaped laminate part. As stated above, post-forming processing would be required to remove the non-laminated peripheral portions of the laminate.

Claim 1 of the present application has further been amended to recite the step of drawing inward the periphery of the stack from a first position to a second position by applying a uniform pressure to the stack with the die press. Because a peripheral portion of the laminate of Pohl is clamped, the shaped part of the stack will necessarily be significantly thinned as a result of the deforming process. Further, this inherent aspect of the Pohl method is explicitly taught in Figures 2 and 3 of the patent.

Since the process defined by current Claim 1 comprises the step of drawing inward the periphery of the laminate from a first position to a second position by the application of uniform pressure with the die press, the shaped portion of the stack of the present invention is not significantly thinned by the forming action.

This clamping step in Pohl is a critical step, since the clamped portion of the laminate is relatively cool whereas the inner portion of the laminate which is being deformed is heated allowing the core of the laminate to soften and be transformed into a viscous mass – see column 2, lines 20-23 of Pohl. Pohl specifically teach that the edges of the laminate 32, which are rigidly clamped between the cooled blankholder 26 and cooling ring 24, are maintained in the solid state and are capable of withstanding the pressure of the molten core – see column 2, lines 23-27 of Pohl. This is a critical part of the method of Pohl, the object of which is to permit the relief of strain introduced in the deforming process through localized heating of the laminate – see column 1, lines 50-54..

Pohl does not apply a uniform pressure to the stack. Rather, Pohl apply a clamping pressure which holds the edges of the laminate in place during the deformation process.

In contrast, the present process involves the application of a uniform pressure to the stack with the results that the die press used in the process contacts substantially the entire surface of the stack for a sufficient time to bond together the sheet metal skins and the paper layer, while concurrently forming a non-planar part from the stack. Application of such a uniform pressure allows formation of a shaped part which is well bonded substantially along its entire surface. Further, the process of the present application as recited in amended Claim 1 forms a shaped part which is not significantly thinned as a result of the forming process.

Even if Clifford could be combined with Pohl as proposed by the Examiner, the combination teaches away from the process recited in the present application. Specifically, following the teaching of Pohl, one would produce the Clifford laminate as a pre-fabricated blank and insert it into the Pohl die press to produce a resulting product. In other words, the

references teach away from a process that involves the simultaneous lamination and forming of a composite having a paper core.

Since the periphery of the laminate in Pohl is not subjected to shaping or clamping and the clamped portion of the laminate is maintained at 60°F, the laminate must be pre-fabricated or the resulting product will not be bonded at its periphery – this would be counterproductive to the object of Pohl. Manufacturing an entirely laminated product would require post-forming processing steps thereby increasing the cost and complexity of forming a shaped composite part. Therefore, not only is there no teaching or suggestion to combine or modify Pohl and Clifford so as to achieve the process of the present application, Pohl in fact teaches away from applying the method taught therein to the laminate taught in Clifford when not yet subject to bonding.

Pohl therefore teaches away from the present process. A worker of ordinary skill in the art having Pohl in hand would be discouraged from applying the method taught therein to a non-bonded laminate, because applying the method to such a laminate would result in a laminate not bonded at its periphery.

In light of the foregoing comments, the Examiner is requested to reconsider and withdraw the rejection under 35 U.S.C. §103(a).

INFORMATION DISCLOSURE STATEMENT

In compliance with the duty of disclosure under 37 C.F.R. §1.56 and in accordance with the practice under 37 C.F.R. §1.97 and §1.98, the Examiner's attention is directed to the documents listed on the enclosed Form PTO-1449. Copies of the listed documents are also

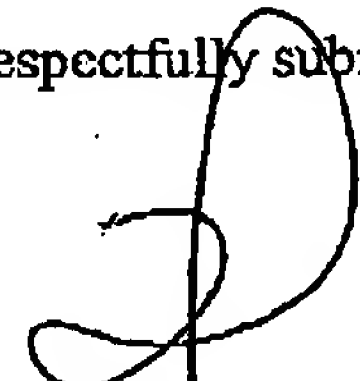
enclosed. Please charge Deposit Account No. 07-1750 in the amount of \$180 for payment of the associated fee.

It is respectfully requested that the below-listed information be considered by the Examiner and that a copy of the enclosed Form PTO-1449 be returned indicating that such information has been considered.

In light of the above, reconsideration and allowance of the present application are respectfully requested.

Applicants' undersigned agent may be reached by telephone at (416) 862-5775. All correspondence should be directed to our below listed address.

Respectfully submitted,


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